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(71) Applicant (for all designated States except US): **HEXIMA LTD** [AU/AU]; 200 Queen Street, Melbourne, VIC 3000 (AU).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **POON, Simon** [AU/AU]; 12/115 Oxford Street, Collingwood, VIC 3066 (AU). **HEATH, Robyn, Louise** [AU/AU]; 3 Berry Street, Clifton Hill, VIC 3068 (AU). **CLARKE, Adrienne, E.** [AU/AU]; 35 Park Drive, Parkville, VIC 3052 (AU).

(74) Agents: **HUGHES, E., John, L. et al.**; Davies Collison Cave, 1 Nicholson Street, Melbourne, VIC 3000 (AU).

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(54) Title: **ARABINO GALACTAN PROTEIN COMPOSITIONS AND METHODS FOR FOSTERING SOMATIC EMBRYOGENIC COMPETENCE**

(57) **Abstract:** Methods for fostering somatic embryogenic competence of a plant cell or tissue by contacting the plant cell or tissue with an arabinogalactan protein (AGP) composition effective for fostering somatic embryogenic competence in plant species and varieties that are recalcitrant to somatic embryogenesis and/or regeneration are provided. AGP compositions useful for fostering somatic embryogenic competence are provided, including total AGP and an AGP RP-HPLC hydrophobic fraction, both from embryogenic callus, from plant varieties including cotton lines Coker 315, Siokra 1-4, and Sicala 40, including at concentrations ranging from about 0.0008 mg/L to about 100 mg/L. Methods for regenerating plants, producing transformed plants, and impeding somatic embryogenic competence are also provided. Plant culture media and methods for making useful AGP compositions and media are also provided. Amino acid and nucleotide sequences for peptides and proteins eluting in hydrophobic AGP fractions are also provided.